Tank GT24

B5377

Service Engineer’s Manual

PREFACE

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Version 1.0

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Operation is subject to the following conditions:

1) This device may not cause harmful interference, and

2) This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Plug the equipment into an outlet on a circuit different from that of the receiver.

Consult the dealer on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark) This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your Tank GT24, and consists of the following sections:

Chapter 1: Provides an Introduction to the Tank GT24 barebones, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.

Chapter 2: Covers procedures on installing the CPU, memory modules, an optional PCI card, and hard drives.

Chapter 3: Covers removal and replacement procedures for pre-installed components.

Appendix: Describes the differences between mainboard BIOS and system BIOS. The cable connection tables are also provided for reference of system setup.

Conventions

The following conventions are used in the manual:

Note: Calls attention to important information.

Warning: Provides information to prevent harm to user or damage to equipment.

SAFETY INFORMATION

Before installing and using the Tank GT24, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the Power Company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

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Chapter 1: Overview

1.1 About the TYAN Tank GT24 B5377

Congratulations on your purchase of the TYAN Tank™ GT24 (B5377), a highly-optimized rack-mountable barebone system. The TYAN Tank™ GT24 (B5377) is designed to support the latest Intel® dual core Intel® Xeon® Woodcrest/ Wolfdale-DP and quad core Clovertown/Harpertown processors, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, the TYAN Tank™ GT24 (B5377) server system is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design. The TYAN Tank™ GT24 (B5377) not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

TYAN is also proud to deliver the Tank GT24 (B5377) in SATA flavor while supporting up to four (4) hot-swap hard drives. The Tank GT24 (B5377) uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of this provides the Tank GT24 (B5377) the power and flexibility to meet the needs of nearly any server application.

1.2 Features

Enclosure
- Industry 19” rack-mountable 1U chassis
- Dimension:
  D 25.4 x W 17.2 x H 1.72 inch (645x436x43.6mm)
- Two nodes in one chassis

Processors (Per node)
- One LGA771 socket
- Supports Intel® 5100/5200/5400 processors
- Supports 1.33/ 1.06GHz FSB

Chipset (Per node)
- Intel® 5100 (San Clemente) North Bridge
- Intel® ICH9-R South Bridge
- Winbond W83627DHG Super IO

Memory (Per node)
- Supports eight (8) 240-pin DDR2 DIMM sockets
- Maximum of 32GB DDR2-533/667 memory
- Supports Registered ECC DIMMs

Expansion Slots (Per node)
- One (1) x16 PCI-E with riser (pre-installed)
- One (1) SO-DIMM connector for IPMI 2.0 W/ KVM over IP (Optional)

Back I/O Ports (Per node)
- One stacked dual USB ports with One RJ45 port (supports M3295-2/ M3296 IPMI from LAN)
- One stacked up LAN ports with dual RJ45 connectors
- One 9-pin COM port
- One 15-pin VGA port

Front Panel Features (Per node)
- I/O
  - (2) USB 2.0 ports
  - (1) eSATA port (Optional)
- LED indicators
  - Power LED
  - (2) LAN LEDs
  - ID LED
  - HDD active LED
  - Warning LED
- Switches
  - Power
  - Reset
  - NMI
  - ID

Storage (Per node)
- Hard Disk Drives:
  - Serial ATA II Host controllers embedded
  - Supports (2) SATA/ SATA2 HDD with RAID 0, 1

Networking (Per node)
- Tow LAN ports
- Dual Gigabit ports from Intel 82571EB

Video (Per node)
- XGI® Z9S, PCI graphics controller
- 32MB DDR2 frame buffer of video memory

Drive Bay (Per node)
- Supports (2) 3.5” SATA Hot-swap drive bays

Motherboard
- (2) TYAN S5377 customized 5.9”x13” board

BIOS
- AMI BIOS® on 8Mbit Flash ROM
- Supports ACPI 2.0
- Supports boot from USB device
- WOL and PXE support
- Power-on mode control for AC power loss recovery
- PnP, DMI2.0, WfM2.0 Power management (S1, S4, S5 support)
- Serial Console Redirect

Server Management
- System fan speed monitoring and control
- Supports Tyan Server Management (TSM)
- Optional TYAN M3295-2/M3296 SMDC, IPMI 2.0 compliant

Server Cooling

- (2) 40x40x56mm 15000rpm heavy-duty fans with fan speed monitor/control
- (6) 40x40x28mm 15000rpm heavy-duty fans with fan speed monitor/control
- (2) Passive CPU heatsinks

Power Supply

- High efficiency EPS 12V, 1U, 600W with PFC (Note: put on the middle of the chassis)
- 100V~240V AC input

Regulatory

- FCC Class A (Declaration of Conformity)
- CE (Declaration of Conformity)
- VCCI
- C-Tick

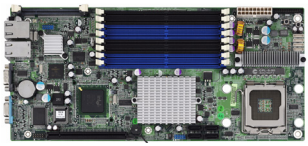
Environment Temperature

- Operating temperature $5^{o}C$~$35^{o}C$
- Non-operating temperature -$40^{o}C$~ $70^{o}C$

1.3 Unpacking

This section describes the GT24 (B5377) package contents and accessories. Open the box carefully and ensure that all components are present and undamaged.

1.3.1 Box Contents

Component	Description
	Industry standard 1U chassis, (4) swappable HDD bays
	TYAN S5377 (Tempest i5100T) motherboard (pre-installed)
	M1228 SAS/SATA backplane (pre-installed)
	M1003 LED and USB control board (pre-installed)
	EPS 12V 600W PSU (pre-installed)
	A (2) 40mm x 40mm x 56mm fans B (6) 40mm x 40mm x 28mm fans

1.3.2 Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN's Web site for service: http://www.tyan.com.

The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.

1 x Tyan driver CD

Power Cords
Left to right: Europe, US

HDD Screws

Mounting Ears & Screws

Barebone Manual &
Mainboard Manual

2 x CPU Heatsinks

Rail Kit

Mounting Brackets x 4

Sliding Brackets
Front L-Bracket x 2
Rear L-Bracket x 2

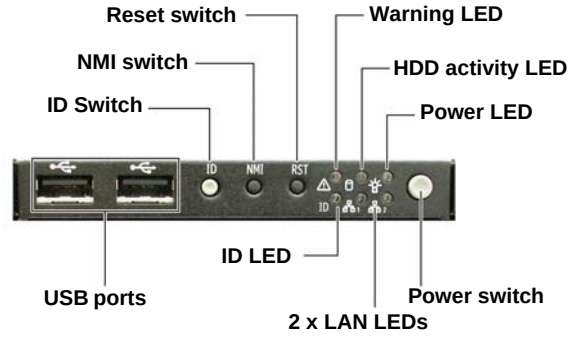
Screws Kit

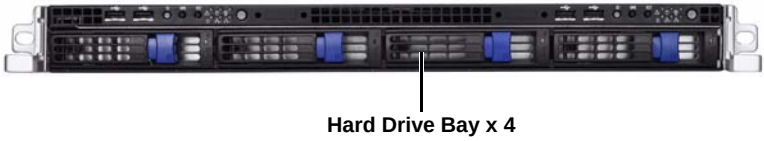
Sliding Rails x 2

1.4 About the Product

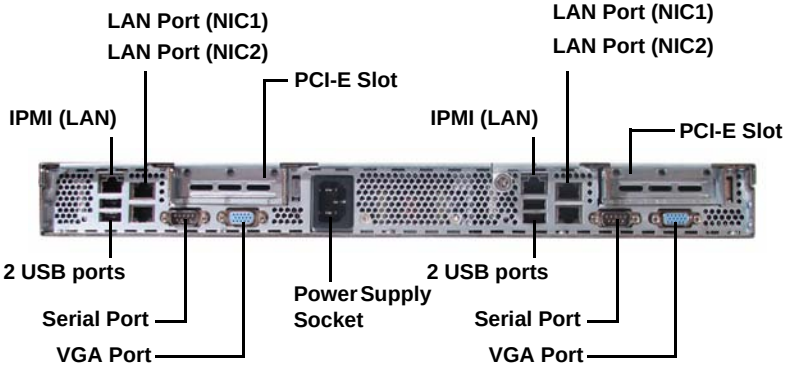
This section contains the hardware diagrams and a block diagram of the GT24 system.

1.4.1 System Front View





1.4.2 System Rear View



1.4.3 LED Definition

Front Panel

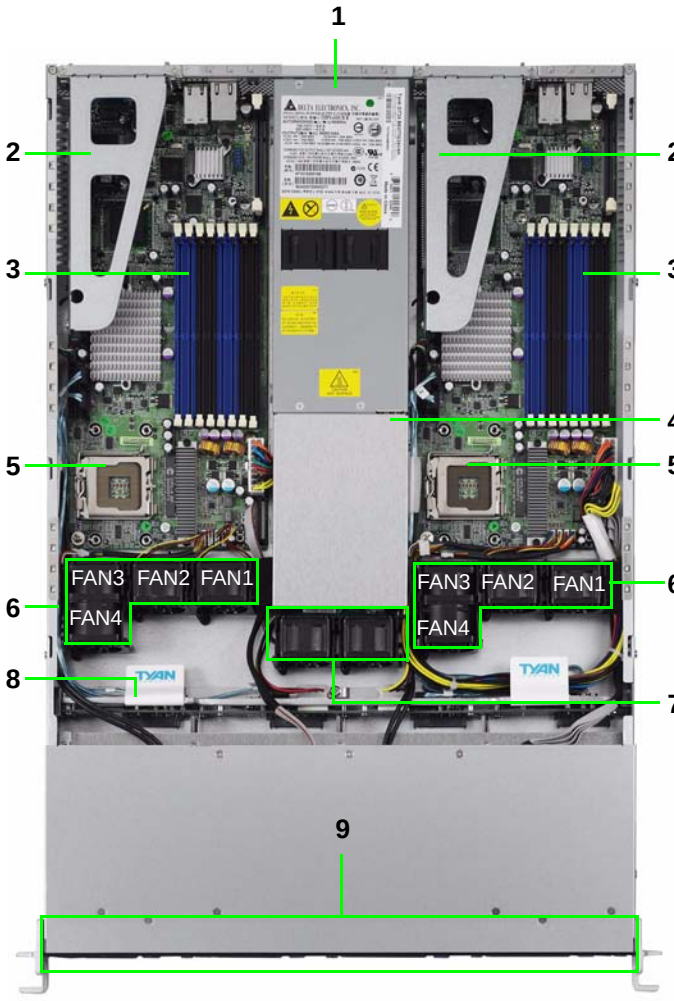
LED	Color	State	Description
Power	Green OFF	ON OFF	Power ON Power OFF
HDD Activity	Amber OFF	Random Blinking OFF	HDD access activity No disk activity
LAN1/LAN2 Activity	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
Warning	Red OFF	ON OFF	Fan fails Normal
Hot Swappable HDD Tray Power LED	Green OFF	ON OFF	Power connected Power disconnected
Hot Swappable SATA HDD Access LED	Amber OFF	Random Blinking OFF	HDD access activity No disk activity
Hot Swappable SAS HDD Access LED	Amber Amber OFF	ON Random Blinking OFF	HDD ready HDD access activity HDD not ready
ID LED	Blue OFF	ON OFF	System is identified System is not identified

Rear I/O LED

*Right or Left is viewed from the rear.

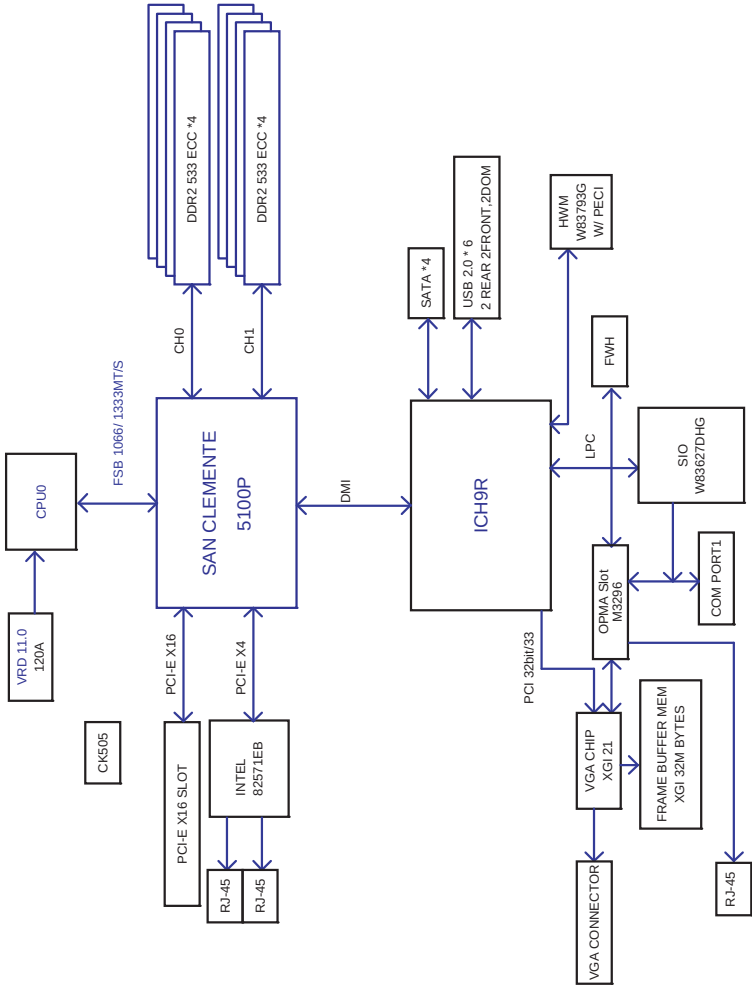
LED	Color	State	Description
RJ45 NIC1 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
RJ45 NIC1 Mode (Right Side)	Amber Green OFF	ON ON OFF	Gigabit mode 100Mb mode 10Mb mode
RJ45 NIC2 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
RJ45 NIC2 Mode (Right Side)	Amber Green OFF	ON ON OFF	Gigabit mode 100Mb mode 10Mb mode
ID LED	Blue OFF	ON OFF	System is identified System is not identified

1.4.4 System Internal View

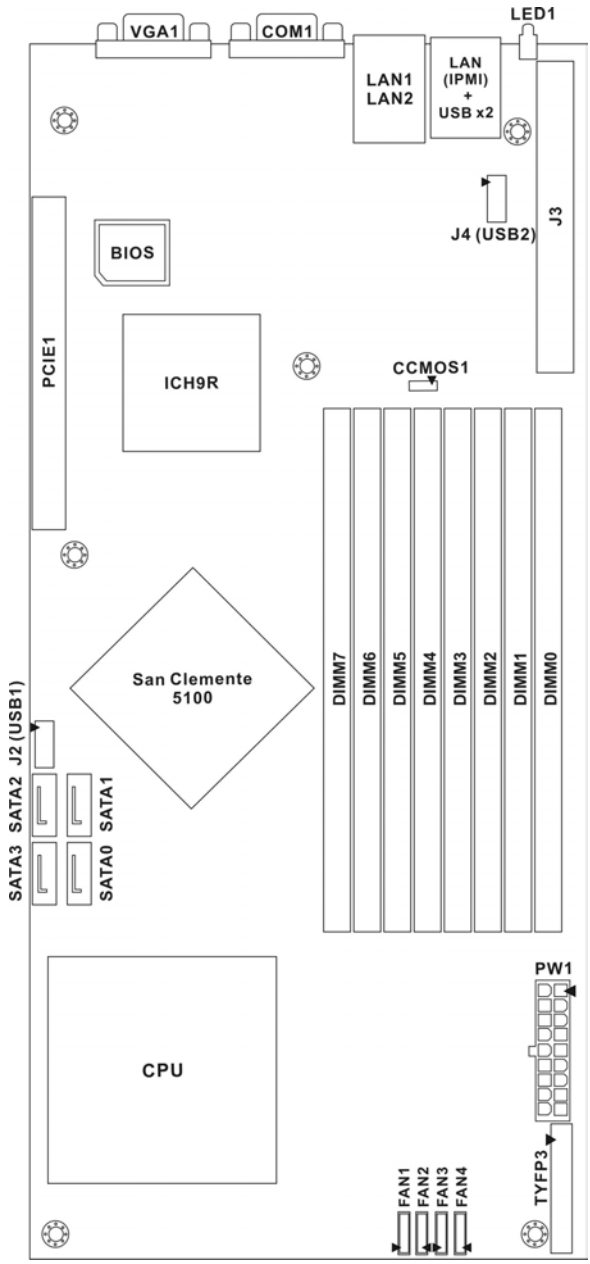


1. 600W Power Supply
2. PCI-E x16 Slot (with riser card) M2087-R
3. Memory Slots
4. Power Board Cover
5. CPU Socket
6. System Fans (From right to left: Fan1, Fan2, Fan3, and Fan4)
7. PSU System Fans
8. SAS/SATA Backplane
9. Four SAS/SATA HDDs

1.4.5 GT24 (B5377) System Block Diagram



1.4.6 S5377 Board Parts, Jumpers, and Connectors



J2 (USB1)

- USB Front Panel Header

J4 (USB2)

- USB Header

J3

- IPMI Connector

CCMOS1

- Clear CMOS Jumper
Pin 1-2 closed: Normal (Default)
Pin 2-3 closed: Clear

FAN1/FAN2/FAN3/FAN4

- 8-pin Fan Connector with Speed Control

TYFP3 (J5) Front Panel Header

Pin	Signal	Pin	Signal
1	HD_LED+	**2**	HD_LED-
3	RESET+	**4**	RESET-
5	PWR_LED+	**6**	PWR_LED-
7	WLED+	**8**	WLED-
9	SMBDAT	**10**	SMBCLK
11	EXT_INT	**12**	+5V
13	5VSB	**14**	INTRUDER_N
15	PWR_SW+	**16**	PWR_SW-
17	LAN1_LED+	**18**	LAN1_LED-
19	LAN2_LED+	**20**	LAN2_LED-
21	LAN3_LED+	**22**	LAN3_LED-
23	ID_LED+	**24**	ID_LED-
25	ID_SW+	**26**	ID_SW-
27	Key	**28**	RSV

Power Supply

1 power connectors: 18-pin (PW1)

Pin	Signal	Pin	Signal
1	+3.3V	**10**	+3.3V
2	COM	**11**	-12V
3	COM	**12**	COM
4	+5V	**13**	PS-ON#
5	5VSB	**14**	+5V
6	COM	**15**	PWR_OK
7	COM	**16**	COM
8	+12V1	**17**	COM
9	+12V2	**18**	+12V3

Chapter 2: Setting Up

2.0.1 Before You Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI card are also given.

Take note of the precautions mentioned in this section when installing your system.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the GT24 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

2.1 Rack Mounting

After installing the necessary components, the GT24 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2

Sliding Brackets x 4 (Front x 2, Rear x 2)

Mounting Ears (including screws) x 2

Screws Kit x 1

Mounting Brackets x 4

2.1.1 Installing the Server in a Rack

Follow these instructions to mount the GT24 into an industry standard 19" rack.

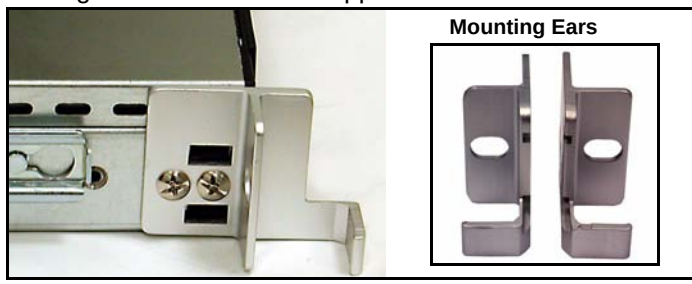
NOTE: Before mounting the GT24 in a rack, ensure that all internal components have been installed and that the unit has been fully tested.

Screws List

No.	Screw	Size	Quantity
A		M4-4L	18
B		M5-8L	10
C		M5-15L	4

Installing the Inner Rails to Chassis

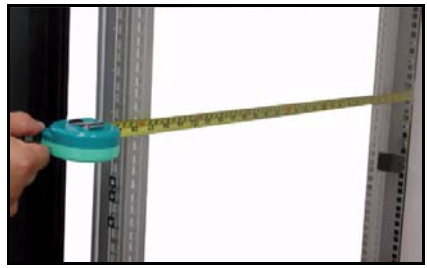
1. Screw the mounting ear to each side of GT24 as shown using 2 screws from the supplied screws kit.



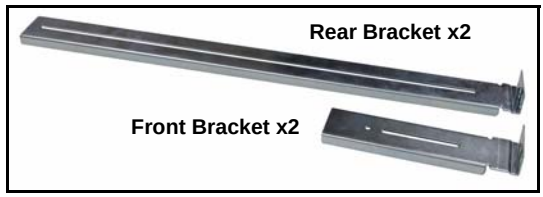
2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 1 M4-4L(A) screw for each side.

Installing Outer Rails to the Rack

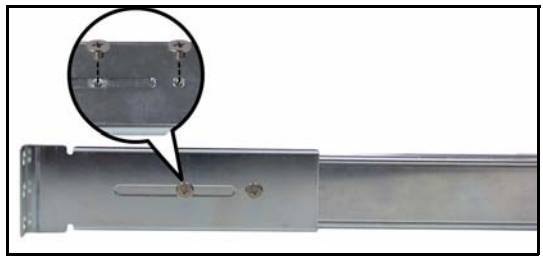
3. Measure the distance between inner side of the front and rear mounting brackets in the rack.



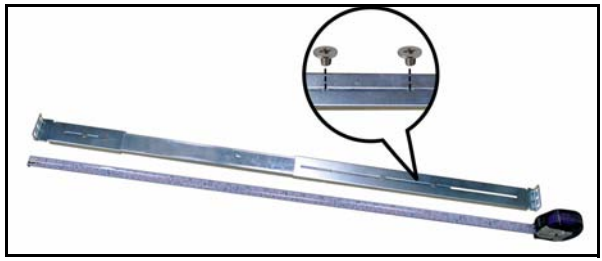
4. Locate the front and rear brackets.



5. Secure the front bracket to outer rail with 2 M4-4L(A) screws.



6. Reserve the distance same as in Step 2 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L(A) screws.

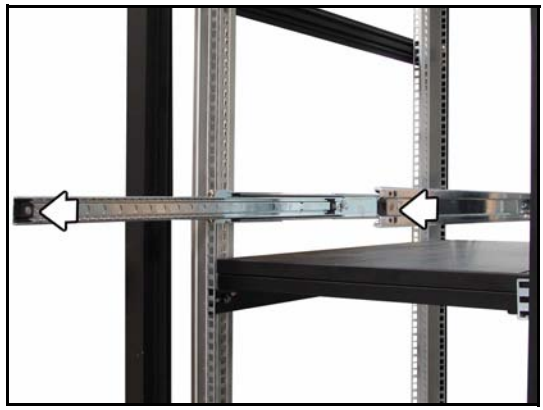


7. Secure the outer rail to the rack using 2 brackets and 4 M5-8L(B) screws for each side. Secure the mounting brackets from inside, not outside, of the rack.

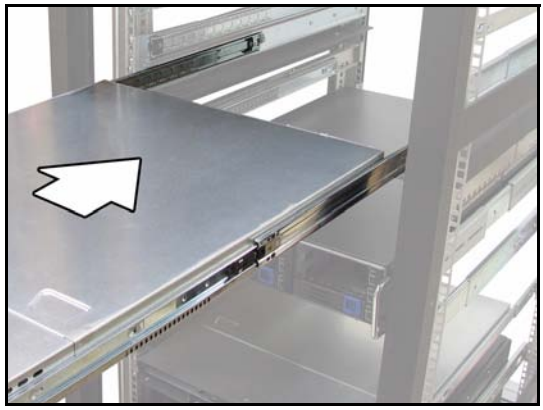
Mounting Bracket

Rackmounting the Server

8. Draw out the middle rail to the latch position.



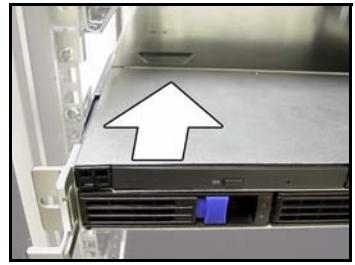
9. Lift the chassis and then insert the inner slide rails into the middle rails.



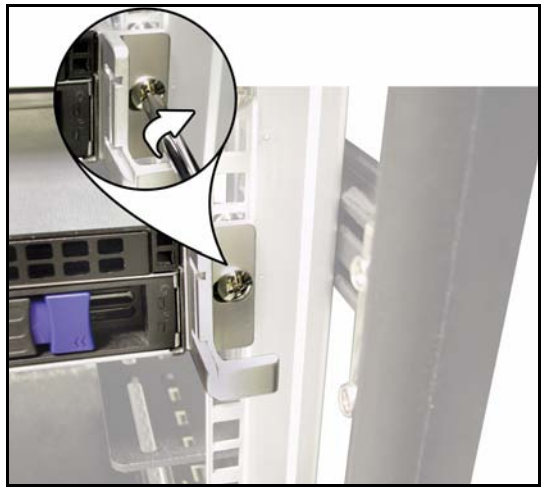
10. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).

A

B



11. Secure the mounting ears of chassis to the rack with 2 M5-15L(C) screws.



NOTE: To avoid injury, it is strongly recommended that two people lift the GT24 into the place while a third person screws it to the rack.

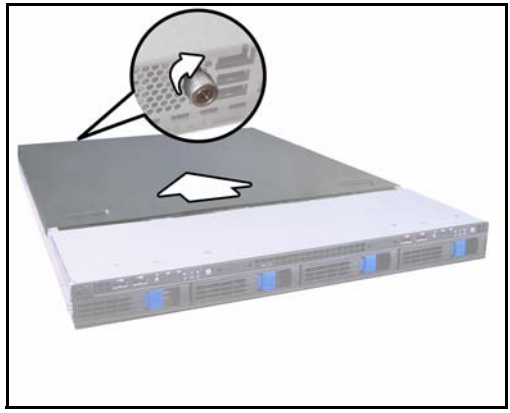
2.2 Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPU, memory modules and PCI card.

2.2.1 Removing the Chassis Cover

Follow these instructions to remove the GT24 chassis cover.

1. Release the screw on the back side. Then slide the chassis cover in the direction of arrow.

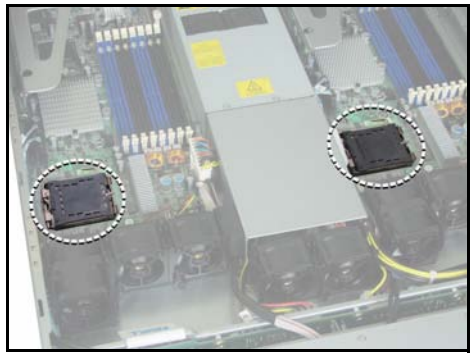


2. Lift the cover off.

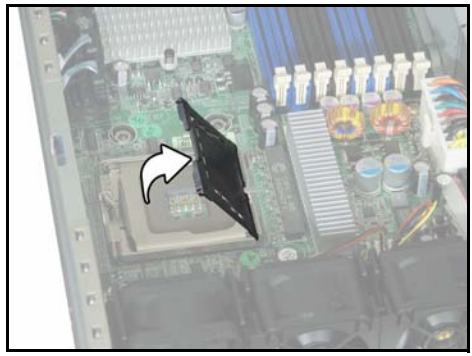
2.2.2 Installing the CPU and Heatsink

Follow these instructions to install the CPU and CPU heatsink.

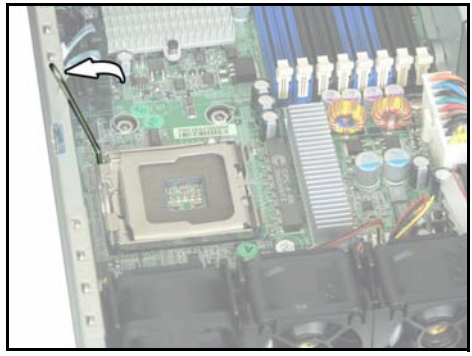
1. Locate the CPU sockets.



2. Take off the CPU protection cap.

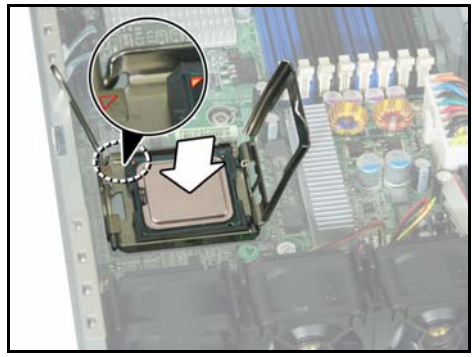


3. Pull the CPU lever up to unlock the CPU socket.

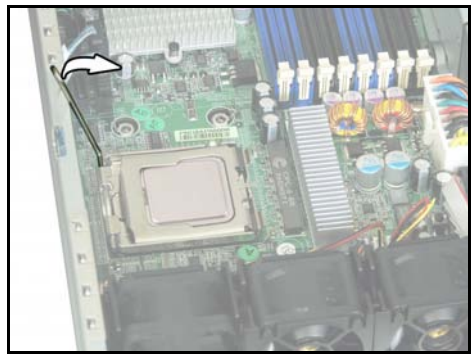


4. Open the socket in the direction as shown.

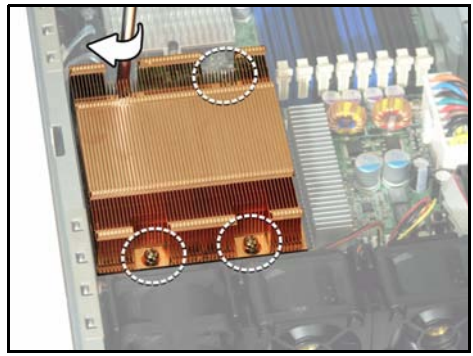
5. Place the CPU in the CPU socket, ensuring that pin 1 is located as shown below.



6. Close the socket and press the CPU socket lever down to secure the CPU.



7. Place the heatsink on top of the CPU and screw into place as shown.



8. Repeat the same procedures to install CPU and heatsink for the other CPU socket if necessary.

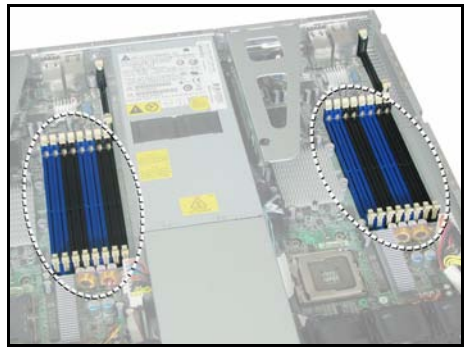
2.2.3 Installing the Memory

Follow these instructions to install the memory modules on the motherboard.

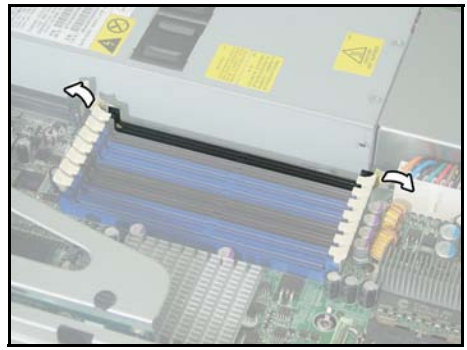
Key points to note before installing memory:

- Only DDR2-667/533 memory modules are supported.
- All installed memory will automatically be detected and no jumpers or settings need to be changed.
- The Tempest i5100T S5377 supports up to 32GB of memory.
- All memory must be of the same type and density.

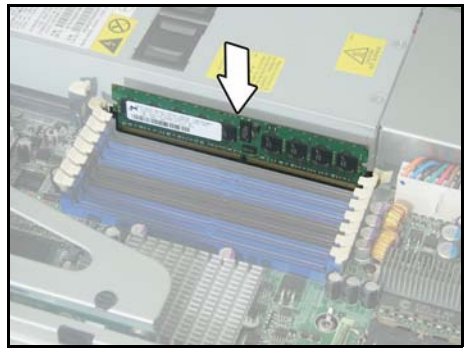
1. Locate the memory slots on the motherboard.



2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. The module has indentations that align with notches in the slots.
4. Insert the memory module into the slot as shown.



5. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.
6. Repeat the same procedures to install memory for the other motherboard if necessary.

Attention When Installing the Memory!

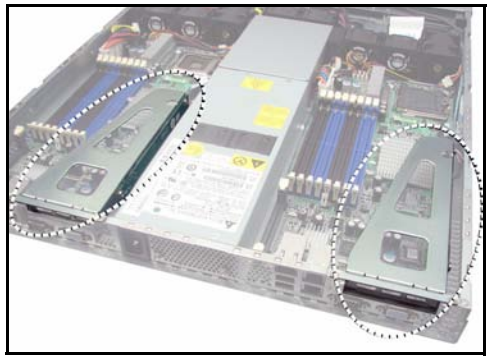
For optimal dual channel operations, always install memory **in pairs** beginning with DIMM0 and DIMM1. For single channel mode, install one DIMM at DIMM0 or DIMM1. Others must be in dual channel mode. Refer to the following table for supported rules for populating memory.

DIMM Configuration	DIMM7	DIMM5	DIMM3	DIMM1
Four DIMMs per Channel 1	Empty	Empty	Empty	Single Rank
	Empty	Empty	Single Rank	Single Rank
	Empty	Single Rank	Single Rank	Single Rank
	Single Rank	Single Rank	Single Rank	Single Rank
	Empty	Empty	Empty	Dual Rank
	Empty	Empty	Dual Rank	Dual Rank
DIMM Configuration	**DIMM6**	**DIMM4**	**DIMM2**	**DIMM0**
Four DIMMs per Channel 0	Empty	Empty	Empty	Single Rank
	Empty	Empty	Single Rank	Single Rank
	Empty	Single Rank	Single Rank	Single Rank
	Single Rank	Single Rank	Single Rank	Single Rank
	Empty	Empty	Empty	Dual Rank
	Empty	Empty	Dual Rank	Dual Rank

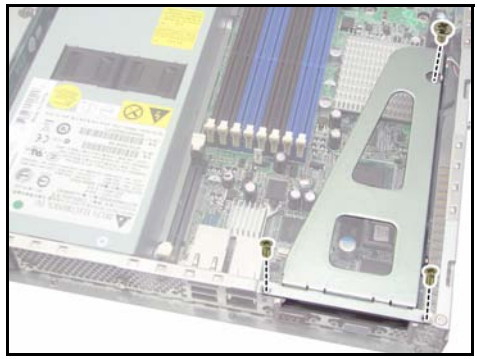
2.2.4 Installing a PCI-E Card

The TYAN Tank GT24 (B5377) has two PCI-E card slots with pre-installed risers. Follow these instructions for the PCI-E card installation in your system.

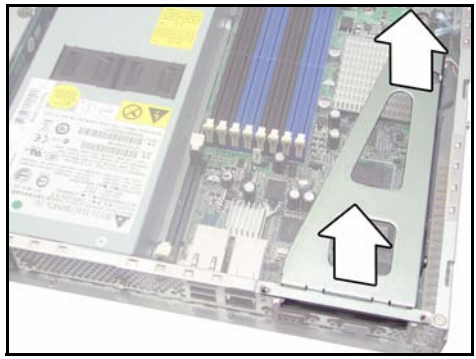
1. Locate the pre-installed PCI-E riser brackets.



2. Remove the three screws securing the PCI-E riser bracket.

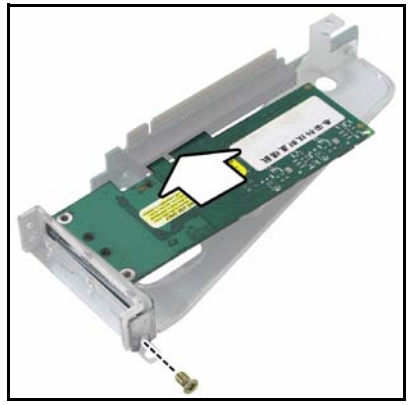


3. Lift off the bracket as shown.

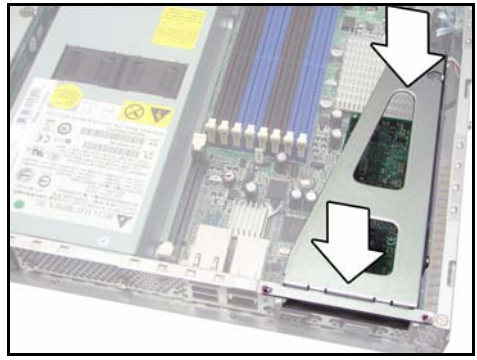


4. Remove the screw securing the metal plate and remove it as shown.

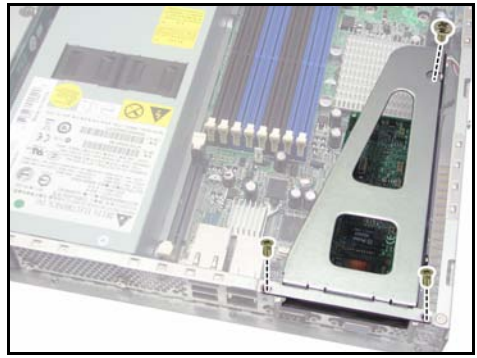
5. Insert a PCI-E card into the pre-installed PCI-E riser as shown.



6. Place back the riser assembly in the PCI-E slot as shown.



7. Secure the riser bracket in place with three screws.



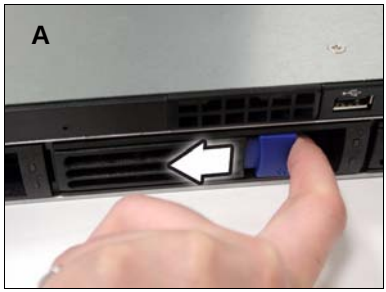
8. Repeat the same procedures to install the PCI-E card for the other PCI-E riser if necessary.

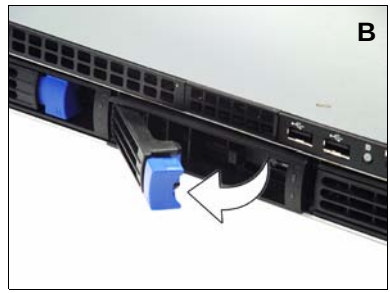
2.3 Installing the Hard Drive for GT24 (B5377)

The GT24 chassis supports external SATA hard drives.

Follow these instructions to install an external SATA hard drive.

1. Press the locking lever latch in the direction of arrow (**A**) and then pull the locking lever open (**B**).

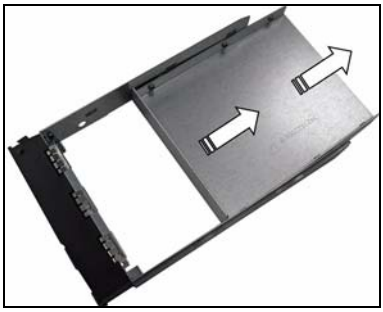




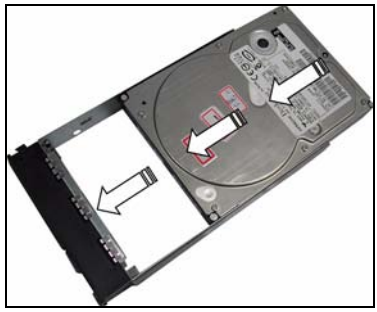
2. Slide the drive tray out.

3. Unscrew the drive tray.

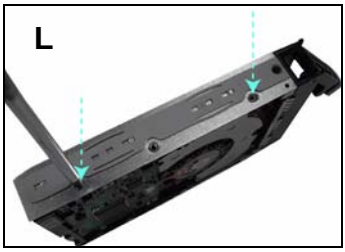
4. Remove the drive tray holder.



5. Place a hard drive into the drive tray.



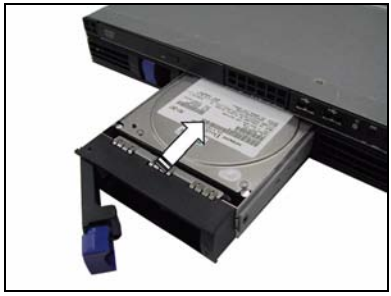
6. Use 4 screws to secure the Hard Disk Drive.



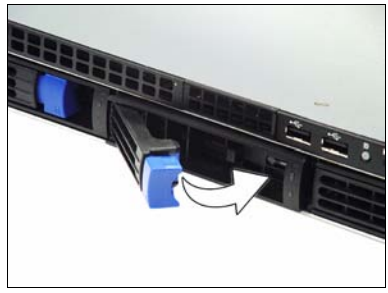
NOTE: The new HDD tray is compatible only with B5377 and models developed later. The new sliding rails on both sides of the drive tray are gray while the old ones are black.

7. Reinsert the drive tray into the chassis (A), ensuring that the drive tray is completely inserted into the chassis (B).

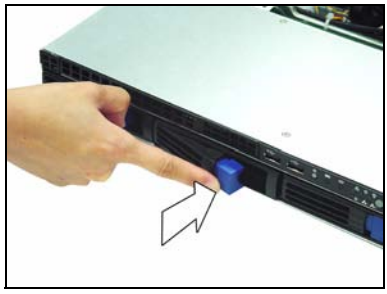
A



B



8. Pressing the locking lever to secure the hard drive tray.



Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre-installed components including the motherboard, LED control board, SAS/SATA backplane, and power supply.

Take note of the precautions in this section when installing your system.

3.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers keeps them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

3.1.2 Tools

The procedures that follow require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Tank GT24 or injury to yourself.

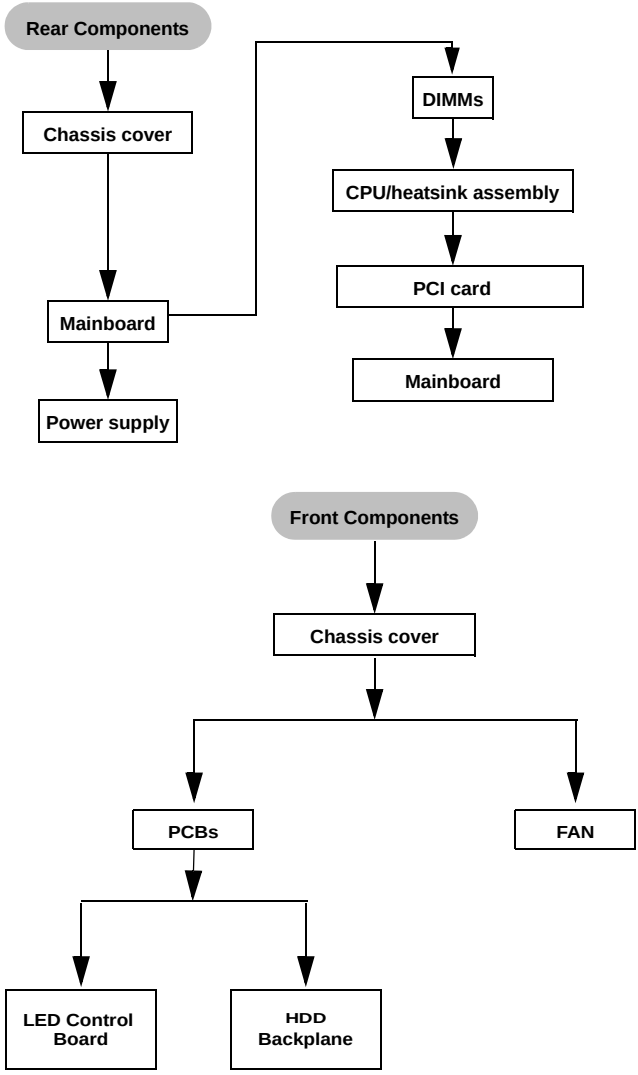
- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.

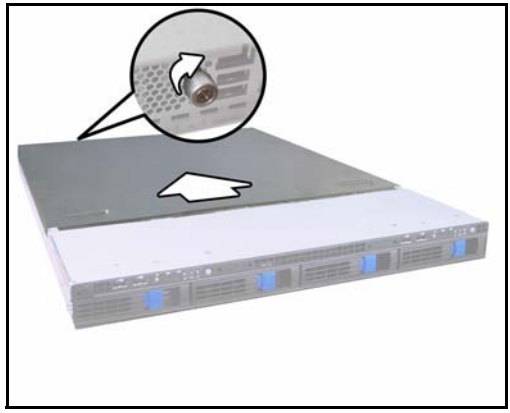


3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Tank GT24 chassis cover.

1. Release the screw on the back side. Then slide the chassis cover in the direction of arrow.



2. Lift the cover off.

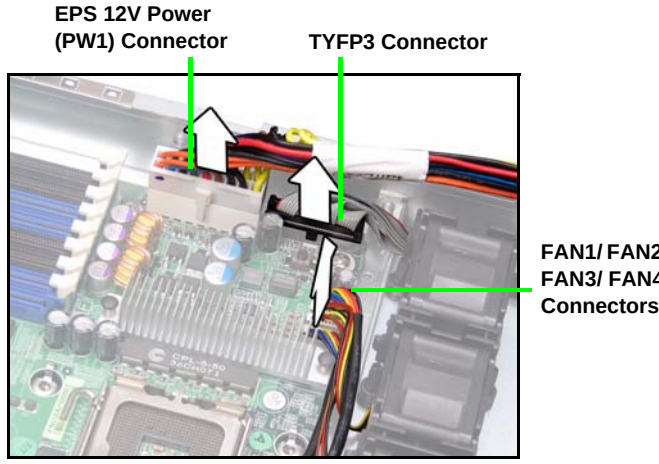
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

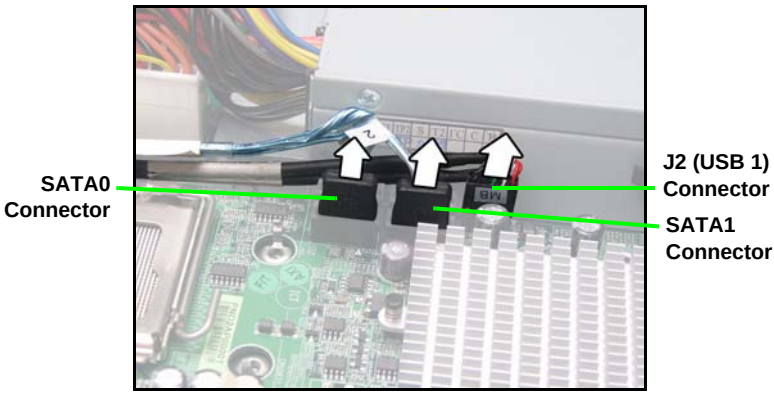
3.4.1 Disconnecting All Motherboard Cables

Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cabling.

1. Disconnect the ATX power and the TYFP3 cables and fan cables.



2. Disconnect the SAS/SATA hard drive cables and USB cables. Refer to the mainboard layout for the locations.



3. Repeat the same steps to disconnect all cables from the other motherboard if necessary.

3.4.2 Removing the Motherboard

After removing all the cables from the motherboard, follow these instructions to remove the motherboard from the chassis.

1. Remove the six screws securing each motherboard to the chassis.

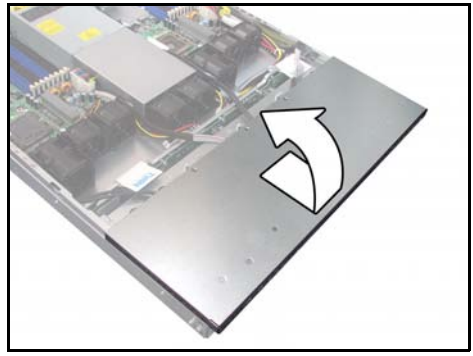
2. Remove the motherboard.
3. Repeat the same steps to remove the other motherboard if necessary.

3.5 Replacing the LED Control Board

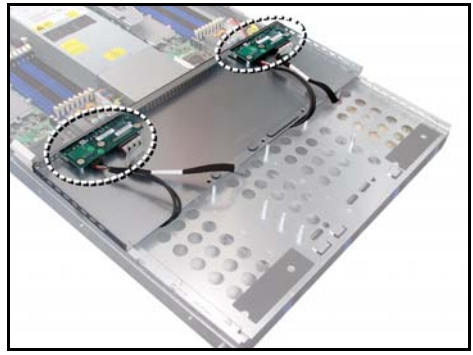
Follow these instructions to replace the LED control board.

1. Remove the five screws securing the front chassis cover.

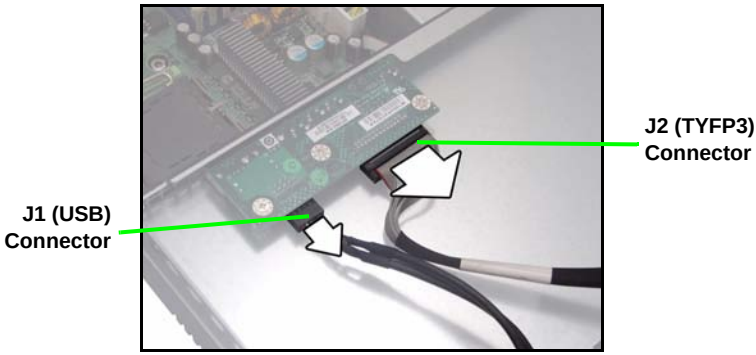
2. Turn over the front chassis cover in the direction of arrow.



3. Locate the two LED control boards on the front chassis cover.

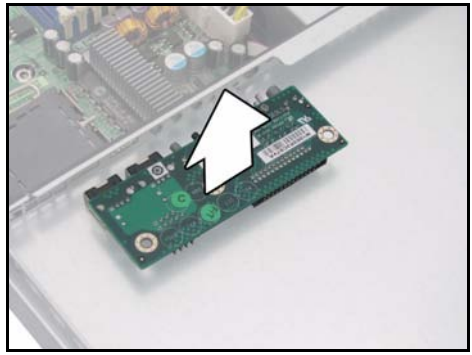


4. Unplug the USB cable and the ribbon cable from their respective connectors.

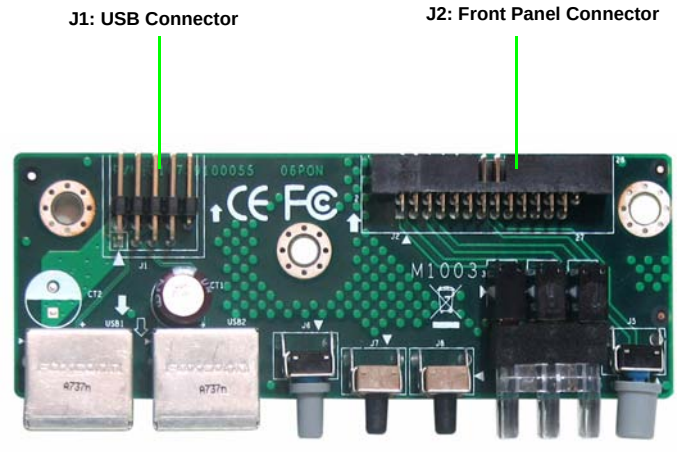


5. Remove the three screws securing the LED control board to the front chassis cover.

6. Lift the LED control board free from the front cover chassis. After replacement, insert the unit to the front cover chassis following the above procedures in reverse.



3.5.1 M1003 LED Control Board Features



3.5.2 M1003 LED Control Board Connector Pin Definition

J1 USB Connector

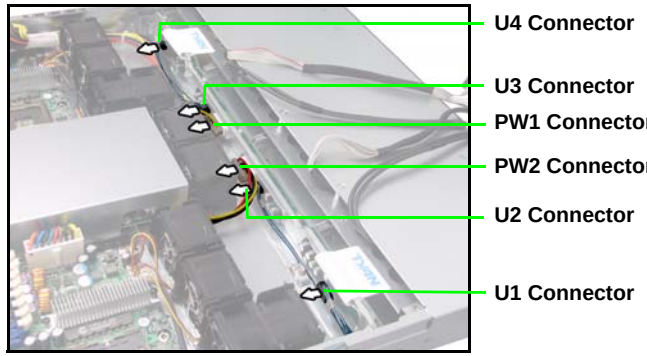
1	VCC5	2	VCC5
3	USB1-	4	USB0-
5	USB1+	6	USB0+
7	GND	8	GND
9	KEY PIN	10	GND

J2 Front Panel Connector

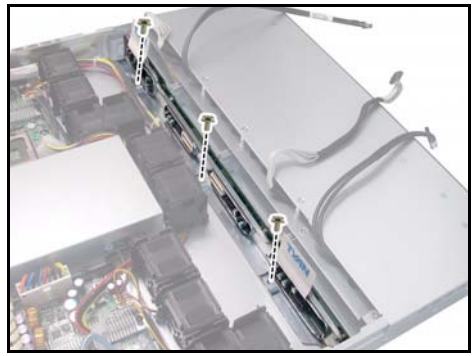
1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMBCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

3.6 Replacing the SAS/SATA Backplane

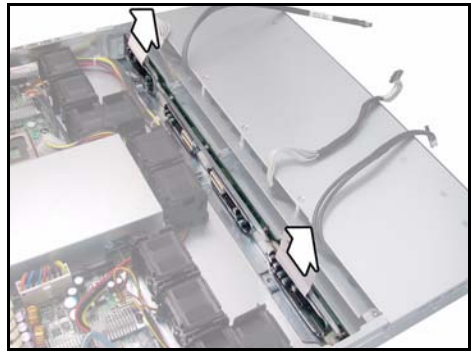
1. Remove all the connected cables from the SAS/SATA backplane.



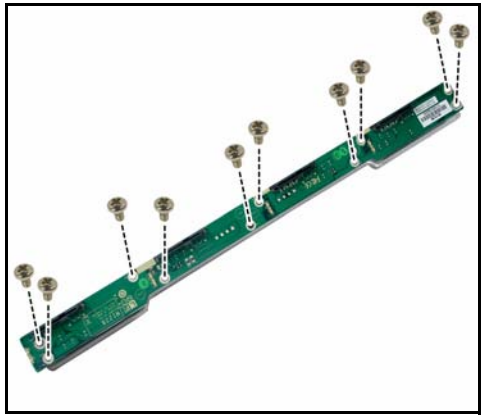
2. Remove the three screws securing the SAS/SATA backplane to the chassis.



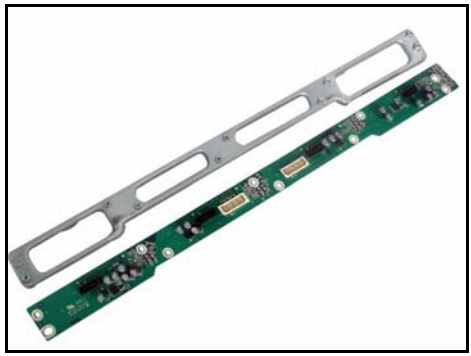
3. Grab the two labels to lift the SAS/SATA backplane off.



4. Remove the ten screws that secure the bracket to the SAS/SATA backplane

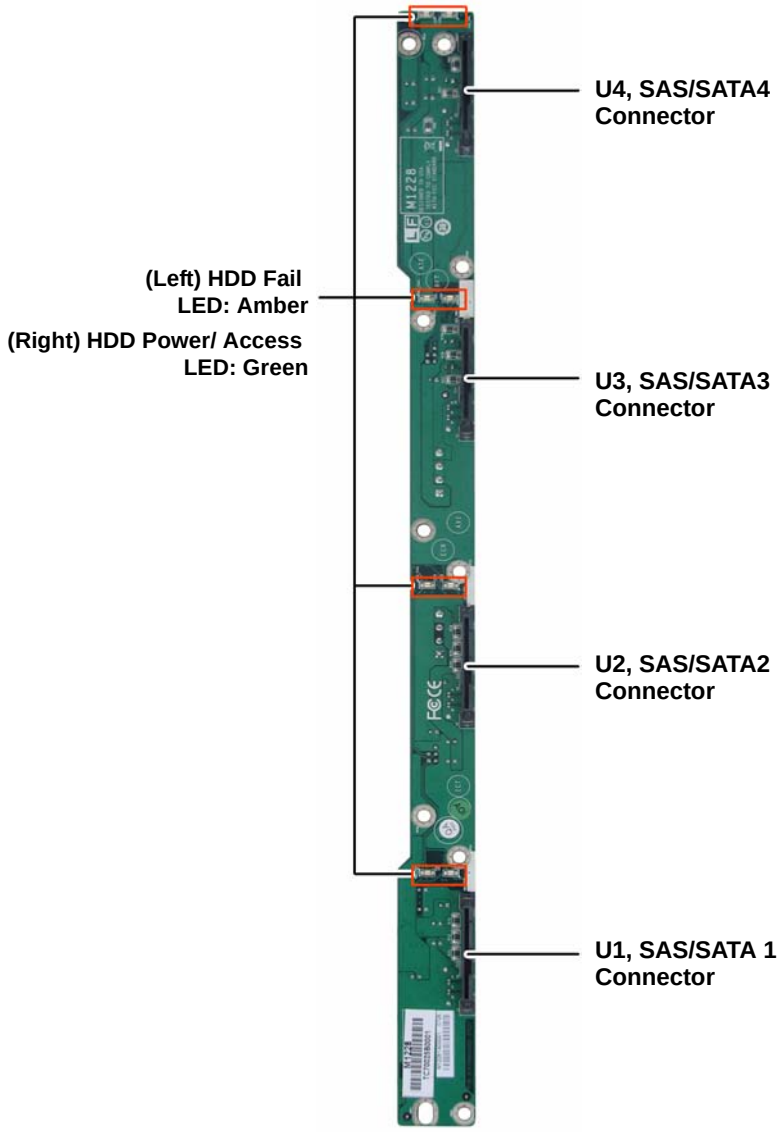


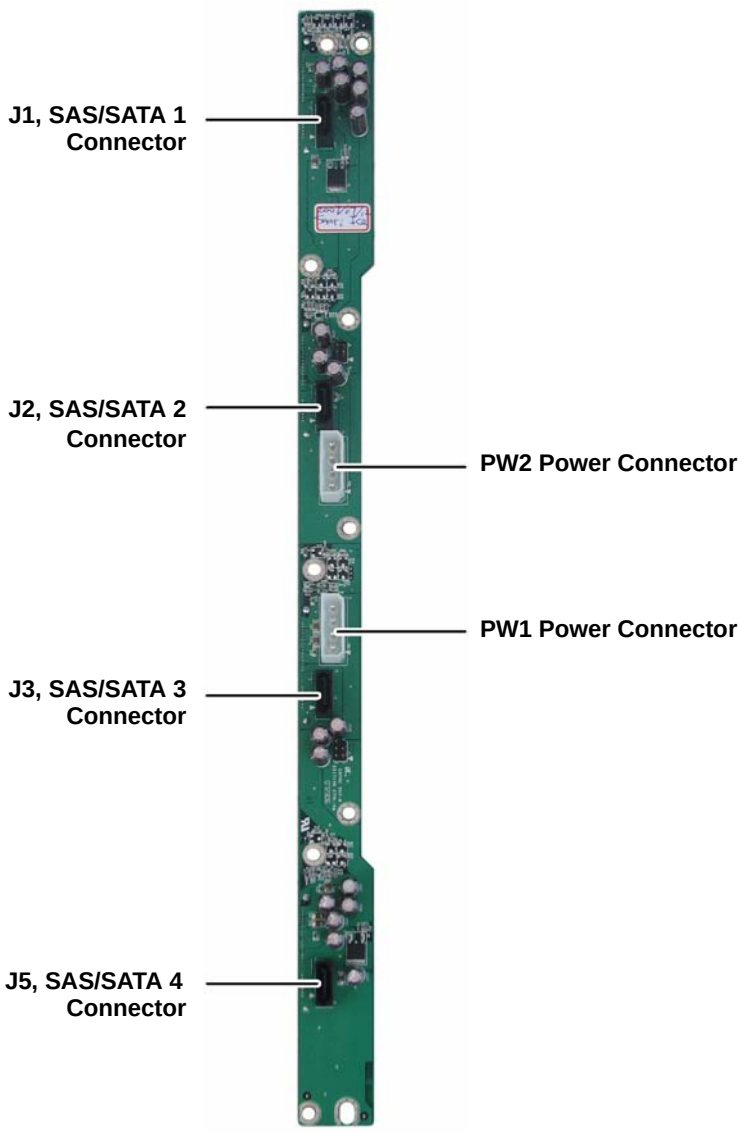
5. Release the SAS/SATA backplane free from the bracket.



6. Replace the unit to the chassis following the above procedures in reverse.

3.6.1 SAS/SATA Backplane (M1228) Features

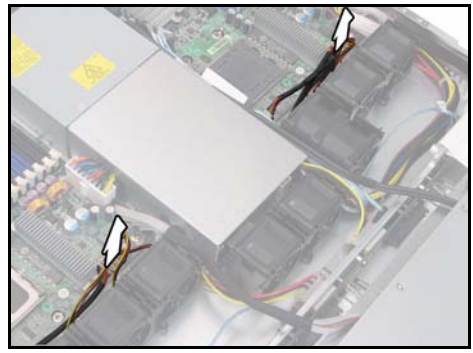

U4, SAS/SATA4 Connector
(Left) HDD Fail LED: Amber
(Right) HDD Power/ Access LED: Green
U3, SAS/SATA3 Connector
U2, SAS/SATA2 Connector
U1, SAS/SATA 1 Connector


J1, SAS/SATA 1 Connector
J2, SAS/SATA 2 Connector
PW2 Power Connector
PW1 Power Connector
J3, SAS/SATA 3 Connector
J5, SAS/SATA 4 Connector

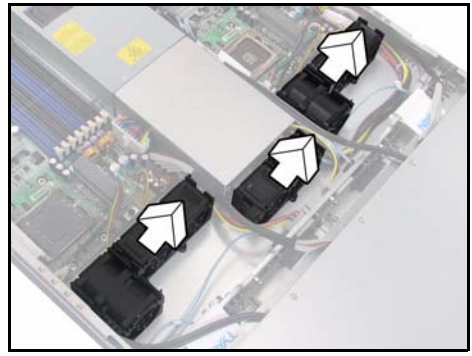
3.7 Replacing the Cooling Fans

Follow these instructions to replace the cooling fans in your GT24 (B5377) system.

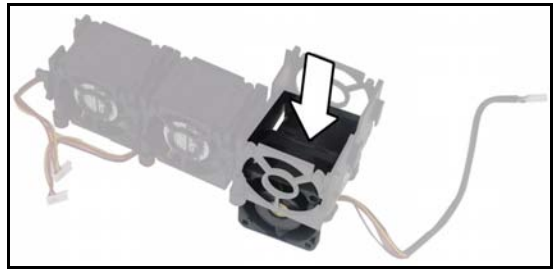
1. Remove the eight fan connectors from the motherboard.



2. Remove the fan unit from the chassis.



3. Remove the fan you want to replace in the direction of the arrow from the fan cradle.



4. Replace a new fan into the fan cradle following the above steps in reverse.

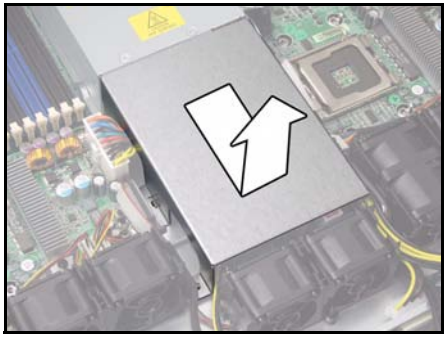
3.8 Replacing the Power Supply

Follow these instructions to replace the power board and power supply in your GT24 (B5377) system.

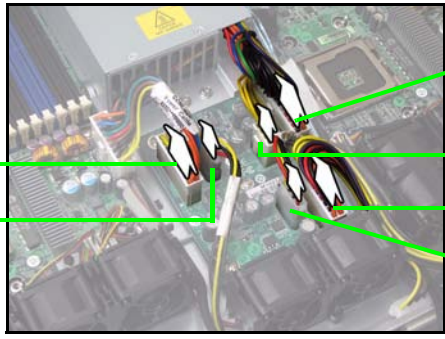
3.8.1 Replacing the Power Board

1. Remove the screw securing the power board cover.

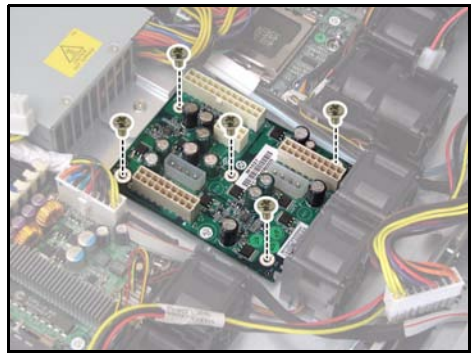
2. Lift up the power board cover as shown.



3. Disconnect all the ATX power connectors from the power board.



4. Remove the five screws securing the power board to the chassis. Then lift off the power board free from the chassis.



5. Replace a new power board into the chassis following the above steps in reverse.

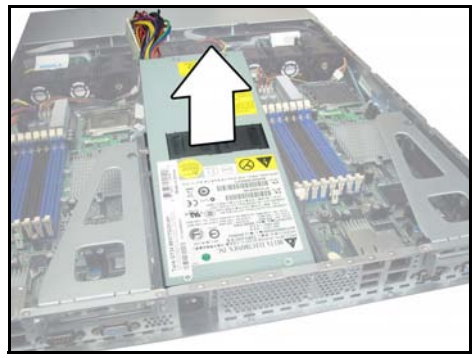
3.8.2 Replacing the Power Supply

To replace the power supply, remove the power cover as described in the section **"3.8.1 Replacing the Power Board"** on page 48.

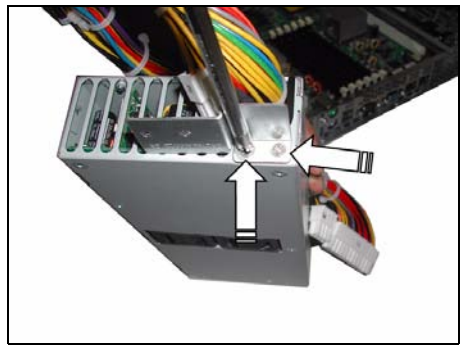
1. Remove the two screws that secure the power supply to the chassis.

2. Disconnect the power cables from the power board (PW1 and PW2 connectors). Remove the two screws that secure the power supply to the chassis

3. Lift the power supply free from the chassis.



4. Remove the two screws securing the PSU fixing bracket to the power supply.



5. Place a new power supply in position in the chassis and secure in place with the two screws.

Appendix I: BIOS Differences

The BIOS of B5377 is similar to the BIOS of S5377. There is only one menu different. You may refer to the attached motherboard manual for the complete BIOS information. The differences between B5377 and S5377 is on the "Advanced/Hardware Health Information" menu. See the following for the differences.

S5377 Advanced/Hardware Health Information

BIOS Setup Utility Advanced		
Hardware Health Configuration		Enables Hardware Health Monitoring Device
H/W Health Function	[Enabled]	
Auto FAN Power Control	[Disabled	
FAN Fail LED Indicator	[Disabled]	
Hardware Health Event Monitoring		
▶ Mainboard Voltages Report		
CPU Temp.	:xx ºC/ xxx ºF	
Ambient2 Temp. (Near Memory)	:xx ºC/ xxx ºF	←→ Select Screen
Ambient2 Temp. (Near NB)	:xx ºC/ xxx ºF	↑↓ Select Item
		+/- Change Option
System FAN1	:xxxx RPM	Tab Select Field
System FAN2	:xxxx RPM	F1 General Help
System FAN3	:xxxx RPM	F10 Save and Exit
System FAN4	:xxxx RPM	ESC Exit
System FAN5	:xxxx RPM	
System FAN6	:xxxx RPM	
System FAN7	:xxxx RPM	
System FAN8	:xxxx RPM	

B5377 Advanced/Hardware Health Information

BIOS Setup Utility Advanced		
Hardware Health Configuration		Enables Hardware Health Monitoring Device
H/W Health Function Auto FAN Power Control FAN Fail LED Indicator	[Enabled] [Disabled [Disabled]	
Hardware Health Event Monitoring		
▶ Mainboard Voltages Report CPU Temp. Ambient2 Temp. (Near Memory) Ambient2 Temp. (Near NB)	 :xx ºC/ xxx ºF :xx ºC/ xxx ºF :xx ºC/ xxx ºF	←→ Select Screen ↑↓ Select Item +/- Change Option Tab Select Field F1 General Help F10 Save and Exit ESC Exit
System FAN1 Speed System FAN2 Speed System FAN3 Speed System FAN4 Speed PSU FAN	:xxxx RPM :xxxx RPM :xxxx RPM :xxxx RPM :xxxx RPM	

Table of Differences

	S5377	B5377
Hardware Monitor Fan	System FAN1 System FAN2 System FAN3 System FAN4 System FAN5 System FAN6 System FAN7 System FAN8	System FAN1 System FAN2 System FAN3 System FAN4 PSU FAN

Appendix II: Cable Connection Tables

NOTE: The Tank GT24 chassis supports two nodes.

SAS/SATA Cables

Table 1: Tank GT24-B5377

	M1228 SATA Backplane	Connect to	Motherboard
Node 1	J5 (SAS/SATA 1)	→	SATA 0
	J3 (SAS/SATA 2)	→	SATA 1
Node 2	J2 (SAS/SATA 1)	→	SATA 0
	J1 (SAS/SATA 2)	→	SATA 1

FAN Cables

Table 2: System Fan to Motherboard

System Fan	Connect to	Motherboard
Fan 3/ Fan 4	→	FAN1 Connector
Fan 2	→	FAN2 Connector
Fan 1	→	FAN3 Connector
PSU FAN	→	FAN4 Connector

Power Supply Cables

Table 3: Power Supply to Power Board

	Power Supply	Connect to	Power Board
Node 1	P1 24-pin power cable	→	PW1 24-pin connector
Node 2	P2 8-pin power cable	→	PW2 8-pin connector

Table 4: Power Supply to Motherboard/ M1228

	Power Supply	Connect to	Motherboard/ M1228
Node 1	PW3 18-pin power cable	→	Motherboard PW1 18-pin connector
	PW4 18-pin power cable	→	Motherboard PW1 18-pin connector
Node 2	PW5 4-pin power cable	→	M1228 PW2 4-pin connector
	PW8 4-pin power cable	→	M1228 PW1 4-pin connector

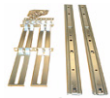
The Other Cables

Table 5: M1003 Front Panel Control Board to Motherboard
Table 6:

M1003	Connect to	Motherboard
J1 USB connector	→	J2 (USB1)
J2 connector	→	J5 (TYFP3) connector

Appendix III: FRU Parts Table

Item	Model Number	Picture	Quantity	Description
Motherboard	S5377G2NR		1	S5377G2NR Intel® Xeon LGA771 support
Chassis Unit	CCHA-0270		1	GT24 1U Chassis Unit for S5377
Top Cover	CCCV-0150		1	Rear Top Cover for GT24 B5377
Chassis Front Bezel	CFBZ-0070		1	Front Bezel for GT Series 1U Chassis
Drive Tray	CHDT-0051		4	Removable 3.5” HDD Tray
Power Supply	CPSU-0261		1	600W Power Supply
FAN	CFAN-0068		2	40x40x56mm, 12V, 14500RPM, 8-pin
	CFAN-0241		6	40x40x28mm, 12V, 15000RPM, 8-pin
Heat Sink & Cooler	CHSK-0170		2	LGA771 CPU Heat Sink
	CHSB-0080		2	CEK Spring for LGA771

Item	Model Number	Picture	Quantity	Description
PCBA	M1228		1	SATA/SAS HDD Board, M1228
	M1027		1	Power Adaptor Board, M1027
	M1003-ID-RS		1	TF-LED Board, M1003-RS
Riser Card	M2087-R		1	PCI-E Riser Card
Rack Mounting Parts	CRAL-0031		1	Rail Kit
	CEAR-0050		1	Mounting Ear Kit
Cable Set	CCBL-072B		2	Control Board Cable, 350mm
	CCBL-035D		2	USB Cable
	CCBL-046O		1	Power Adapter Cable, 18pin
	CCBL-046P		1	Power Adapter Cable, 18pin
	CCBL-046Q		2	Big 4P Power Cable
	CCBL-067E		2	SATA/SAS Cable

Item	Model Number	Picture	Quantity	Description
Cable Set	CCBL-032K		2	e-SATA Cable
	CCBL-0388		3	Fan Extension Cable
	CCBL-0310		1	A/C Power Cord, US Type, 2440mm
	CCBL-0300		1	A/C Power Cord, EU Type, 1800mm
SMDC	M3295-2		1	SMDC IPMI Card
	M3296		1	SMDC IPMI Card

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then Tyan Computer Corporation can help.Besides designing innovative and quality products for over a decade, Tyan has continuously offered customers service beyond their expectations. Tyan's website (**www.tyan.com**) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. Tyan also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, Tyan serves multiple market segments with the industry's most competitive services to support them.

"Tyan's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Please feel free to contact us directly for this service at **techsupport@tyan.com**

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com

3. Contact your dealer for help BEFORE calling TYAN.
4. Check the TYAN user group: alt.comp.periphs.main-board.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, mis-use, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed pre-paid. TYAN will pay to have the board shipped back to you.